

From instrument supplier to comprehensive partner

Terrafame trusts Endress+Hauser's expertise and service

Terrafame

Terrafame reduces the carbon footprint of transport by delivering responsibly produced battery chemicals to the global battery industry. One of the world's largest production lines for chemicals used in electric car batteries is located on Terrafame's industrial site. The plant is capable of producing nickel sulphate for around 1 million electric cars per year. The carbon footprint of the nickel sulphate produced by Terrafame is among the smallest in the industry.



To be successful, challenging operating environments and processes require robust and high-quality measurements. Endress+Hauser supplies the instrumentation for thousands of positions at Terrafame's bioleaching line, metal recovery plant and battery chemical plant and offers support to its partner in procurement, maintenance and development work.

In 2006, Sales Manager **Kari Isometsä** from Endress+Hauser was driving along a remote forest road in Talvivaara, Sotkamo. Awaiting him, in the middle of the forest landscape of northern Finland, were three pits in the ground filled with process liquids and few pump lines equipped with Endress+Hauser measurements. At the time, it was difficult to imagine that the first and most significant battery chemical plant in Finland would be built in that same spot.

Endress+Hauser was selected as Terrafame's instrumentation supplier at an early phase of operations because of its extensive offering of measurement instrumentation for industrial processes and its experience gained with the mining and chemical industries.

"From the very beginning, our partnership has been based on our ability to provide measuring instrumentation that meets industry requirements, as well as comprehensive support and services for the optimal utilization of the installed instrument base," says Isometsä, who is responsible for industrial customers in Northern Finland.

Both the cooperation and installed base of Endress+Hauser instrumentation at the Terrafame plant has strengthened over the years. Today, almost 90 percent of all process variable measuring devices used at the plant are supplied by Endress+Hauser.

High-quality measurements for demanding conditions

High temperatures, strong pressure and corrosive process liquids. Terrafame's critical processes are challenging and demand a lot from measurements and analyses.

"The work is highly mechanical in the mine itself, but as soon as the mined ore is transferred to the bioleaching heaps, measurements are required to run the process successfully. Particularly in the extraction process and at the battery chemical plant, robust, reliable and safe measurement solutions are required," says **Elisa Patrikainen**, Industry Manager for mining, mineral and metal industries at Endress+Hauser.

Endress+Hauser provided measuring solutions for thousands of measurement positions at Terrafame.

"It's to the customer's advantage that all measurements can be ordered from one source. We are more than a retailer – as a device manufacturer, we know our own products the best," Patrikainen continues.

The future of electric cars is being made in Sotkamo. The battery chemical plant, completed in 2021, is the most significant expansion in Terrafame's history. Endress+Hauser served as the Main Instrument Vendor for the plant, providing it with almost all of the field devices required.

"In addition to supplying most of the measurements required at the battery chemical plant, we also supported engineering and procurement with a project services. The close

cooperation, that started with our experts and project manager in the plant's design phase, facilitated the work of the customer and process engineer and allowed the solutions to be customized," Isometsä says.

Endress+Hauser's Netilion cloud-based IIoT ecosystem is used for the management of the installed base in the battery chemical plant and the metals recovery plant. It allows real time data monitoring of the installed base and enables proactive maintenance of devices. It offers fast access to critical information, such as manuals, spare parts, product availability and reports. Quick access to the right information speeds up maintenance processes, such as the repair or replacement of an instrument, as the database is automatically updated when changes take place in the life cycle of the instruments.

"Netilion supports the work of maintenance staff in particular. Netilion compiles the information on the products supplied, the documentation and information on possible replacements on a position-specific basis. This facilitates not only lifecycle management but also inventory management and placement of orders," Patrikainen explains.

Trust at the core of cooperation

For its customers, Endress+Hauser is increasingly not only a device supplier but also a comprehensive partner. Close cooperation is carried out with process engineers as well as maintenance and production staff.

"We support the customer from engineering to commissioning – and beyond," Isometsä says.

At Terrafame, cooperation has also been conducted in various development projects aimed at optimizing measurements and, through them, improving process control and performance. For example, a solution for optimizing level measurement of the hydrogen sulfide reactors used in the enrichment process was sought through the Endress+Hauser Group.

"In development projects, we combine locally gained experience with the expertise of international networks. When optimizing radiometric measurements in the process critical hydrogen sulfide reactors, experts from the Endress+Hauser Group supported the local sales and service personnel, created calculations for sizing and offered training for the customer," says Patrikainen.

Patrikainen and Isometsä highlight the service contract signed with Terrafame as the peak of the cooperation. Under this contract, a service engineer from Endress+Hauser is present at the plant to support Terrafame's own maintenance team when needed and to ensure that the installed base works and is up to date.

"For us, the service contract is an indication of trust in our expertise and professional skills. Thanks to the continuously deepening cooperation we are familiar with the site and the customer's needs – this also means that we are able to offer the best solutions," says Isometsä with pride.

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